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EXAMINER	
FLANDERS, ANDREW C	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/856,734	BARTLETT ET AL.	
	Examiner	Art Unit	
	Andrew C. Flanders	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *61,62,64-113,115,116 and 119-146* is/are pending in the application.

4a) Of the above claim(s) *62,64-100,109-113,116 and 119-138* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *61,101-107,115 and 139-145* is/are rejected.

7)☒ Claim(s) *108, 146* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 13 March 2007 have been fully considered but they are not persuasive.

Applicant alleges:

> "However, superimposing, in the adder (38) of Nuytkens et al., the output of the code modulator (34) onto the output of the audio source (22A) does not constitute "modulating" a data signal onto at least one "carrier signal," as recited in claim 61 (emphasis added). Rather, the adder (38) simply superimposes (i.e., adds) the spread signal from the output of the code modulator (34) to the audio signal from the output of the audio source (22A). Superimposing this spread signal onto this audio signal adds noise to the audio signal (see, e.g., Nuytkens et al, col. 9, lines 53-67). But one of ordinary skill in the art would understand that this added noise does not "modulate" the audio signal."

Examiner respectfully disagrees. Applicant is attempting to narrow the context of modulation without actually claiming the limitations. Another possible broad interpretation of the term 'modulate' is given by the Microsoft Computer Dictionary which defines it as "To change some aspect of a signal intentionally, usually for the purpose of transmitting information." This is precisely what superimposing the data onto the audio signal does. Thus, it can be considered modulating in its broadest sense.

Applicant further alleges:

> "The Examiner apparently argues that generating the narrow-bandwidth signal shown in Figure 3a of Ikeda constitutes "modulating" a

data signal onto at least one "carrier signal" (Office Action, pg. 3, last paragraph). "

"However, Figure 3a of Ikeda simply shows the amplitude spectrum of an unmodulated (i.e., baseband) data signal. The amplitude spectrum in Figure 3a of Ikeda is analogous to the amplitude spectrum shown in Fig. 3.29 of Dunlop et al. for only the positive side of the frequency axis (i.e., without showing "negative" frequencies). As explained in Dunlop et al. on page 113, the amplitude spectrum of a binary signal with pulse duration 't' is given by the 'sinc' function, with most of the energy in the spectral envelope being below frequency 'lit'. "The bandwidth of the data signal is therefore usually approximated by the reciprocal of the pulse width" (Dunlop et al., pg. 113, paragraph 2). Figure 3a of Ikeda illustrates this approximation. The data signal of Ikeda is the "duplication control information" and indicates "Never Copy," "Copy Once," "No More Copy," or "Copy Free" (col. 14, lines 14-19). As discussed in Ikeda, this duplication control information is formed by an 8 bit word (col. 10, lines 64-67). These 8 bit words have the narrow bandwidth shown in Figure 3a of Ikeda. The generation of the amplitude spectrum shown in Figure 3a of Ikeda does not involve any "carrier signal,' as required by claim 61."

The Examiner respectfully disagrees. The data is created and set to fit the band as shown in Fig. 3a. That creation requires a modification of the data to set it up in that manner. As a result, the data is 'modified' and then meets the broadest definition of modulate as defined above.

Applicant further alleges;

"Moreover, superimposing, in the adder (38) of Nuytkens et aL, the spread signal from the output of the code modulator (34) onto the audio signal from the output of the audio source (22A) does not constitute modulating a data signal onto at least one "periodic carrier signal," as recited in claim 61 (emphasis added), because the audio signal of Nuytkens et aL cannot be a "periodic" signal. A primary object of Nuytkens et aL is to hide the spread signal in the audio signal (see, e.g., col. 1, lines 46-48). Nuytkens et al. relies on the spread signal having an amplitude that is lower than that of the audio signal, such that the spread signal is masked by the audio signal. Since the spread signal has a relatively wide bandwidth, the audio signal must also have a wide bandwidth in order to

> mask the spread signal. However, periodic signals comprise a single frequency (corresponding to the reciprocal of the periodicity) if the periodic signal is a sinusoid, or harmonics thereof if the periodic signal is non-sinusoidal. If the audio signal of Nuytkens et al. were a periodic signal, it would not be possible to properly mask the spread signal with the audio signal because the spread signal would include frequencies not contained in the periodic audio signal and these frequencies would be audible to the human perceiving the transmission. Therefore, the audio signal of Nuytkens et al. cannot be a periodic signal."

Examiner respectfully disagrees. Applicant is reading more into the limitation periodic than is claimed. An audio signal can be a periodic signal contrary to what Applicant has alleged. Often, periodic sinusoids are used to generate music such as in MIDI format. Further, the term periodic can also be interpreted broadly to just mean something that is repeating. There are numerous instances in audio where a portion repeats, such as in a song, the portion known as the chorus. As such, the audio signal can be considered a periodic carrier as broadly claimed. Further, the data signal in Ikeda is shown in its frequency representation. Each point on the X axis of the graph represents a single, periodic frequency. There are many periodic signals combined to form the signals disclosed by Ikeda.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

and 143-145

Claims 61, 101, 102, 105 – 107, 115, 139, 140 ~~and~~ 115, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nuytkens (U.S. Patent 6,765,950) in view of Ikeda (U.S. Patent 6,636,551).

Regarding **Claims 61 and 115**, Nuytkens discloses:

A toy system comprising an encoder for encoding a data signal to form a spread and modulated signal (Fig. 10 element 10), an electro acoustic transducer for converting the spread and modulated signal into a corresponding acoustic signal (i.e. the speaker in Fig. 10), and a toy responsive to the acoustic signal (Fig. 10 element 18), wherein:

the encoder comprises:

(i) a first receiver operable to receive the data signal (Fig. 10 element 26);

(ii) a spreader operable to spread the received data signal or a modulated version of the received data signal (Fig. 10 element 30 and 34).

Nuytkens does not explicitly disclose the data signal having a data signal bandwidth centered around a first frequency or forming a spread signal having a signal bandwidth greater than the data signal bandwidth.

However, Nuytkens discloses using spread spectrum to superimpose a data signal onto an audio signal in Fig. 10. Nuytkens does not go into detail about this processes as it is relatively well known in the art.

Ikeda discloses a low bit rate narrow-bandwidth data signal in Fig. 3(a). This data signal is comparable to the data signal 26 in Nuytkens. Ikeda discloses superimposing this data signal onto a video signal, which is just as easily done onto an

audio signal such as the one disclosed by Nuytkens. Ikeda further discloses using spread spectrum to spread the energy of this signal into a wide bandwidth signal in Fig. 3(b). The processes is then reversed to recover the narrow band signal. All of this is done using PN code via spread spectrum; col. 14. Nuytkens discloses using spread spectrum and code generation to modulate signals, but does not provide this level of detail.

Applying these teachings to Nuytkens discloses:

the data signal having a data signal bandwidth centered around a first frequency (i.e. the narrow band signal in Ikeda, which is now the data signal in Nuytkens, in Fig. 3(a) has a center frequency);

forming a spread signal having a signal bandwidth greater than the data signal bandwidth (i.e. spreading the data signal in Fig. 3(b) to a wide band signal in Ikeda);

(iii) a modulator operable either:

a) to modulate the data signal before being spread by said spreader onto at least one periodic carrier signal such that (i.e. creation of the narrowband data signal of the control information and placing it at a first frequency as shown in Fig. 3(a) of Ikeda), after spreading by the spreader, a main band of a power spectrum of the spread and modulated signal is centered around a second frequency that is different from the first frequency (i.e. spreading the data signal over a range of frequencies in Fig. 3(b) which has a different center frequency of that in Fig. 3(a)) and that lies within an audible frequency band of 20 Hz and 20kHz (i.e. the data signal 26 of Nuytkens as spread by

Ikeda is then transmitted over a loud speaker for reception by a microphone in Nuytkens Fig. 10); or

b) to modulate the spread signal onto at least one periodic carrier signal such that a main band of a power spectrum of the spread and modulated signal is centered around a second frequency (i.e. spreading the data signal 26 of Nuytkens as taught by Ikeda and superimposing it onto the audio signal of Nuytkens) that is different from the first frequency and that lies within an audible frequency band of 20 Hz and 20 kHz (i.e. the spread signal has a different frequency center than the non spread signal in Ikeda and the data signal 26 of Nuytkens as spread by Ikeda is then transmitted over a loud speaker for reception by a microphone in Nuytkens Fig. 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to set Nuytkens spreading to operate as that taught by Ikeda. All of this is done using PN code via spread spectrum; col. 14. Nuytkens discloses using spread spectrum and code generation to modulate signals. Ikeda discloses using PN codes to spread a data signal to superimpose it over a video signal. Using the exact method of spreading disclosed by Ikeda would involve using watermarks. The data signals are generally watermarks. Watermarking audio signals in this manner is notoriously well known as is further evidenced by Petrovic (U.S. Patent Application 2004/0169581) in Figure 2. This is typically done to synchronize a toy with a children's television program without the data being perceptible; Petrovic para. 002 – 0018. Additionally Ikeda discloses that using electronic watermarks allows the side supplied with the information

signal to surely and accurately detect each of the superimposed additional information signals; col. 3.

Regarding **Claim 101**, in addition to the elements stated above regarding claim 61, the combination further discloses:

wherein the responder is operable to generate an output that is discernible to human beings (col. 9 lines 7 – 22).

Regarding **Claims 102, 139 and 140**, in addition to the elements stated above regarding claims 101 and 115, the combination further discloses:

wherein the responder is operable to cause the toy to output an acoustic signal determined using the data signal (col. 9 lines 7 – 22).

Regarding **Claims 105 and 143**, in addition to the elements stated above regarding claims 101 and 139, the combination further discloses:

wherein the responder is arranged to cause the toy to display a visual signal determined using the data signal (col. 9 lines 7 – 22).

Regarding **Claims 106 and 144**, in addition to the elements stated above regarding claims 101 and 139, the combination further discloses:

wherein the responder is operable to cause a movement of the toy in dependence upon a content of the data signal (col. 9 lines 7 – 22).

Regarding **Claims 107 and 145**, in addition to the elements stated above regarding claims 101 and 139, the combination further discloses:

wherein the responder is operable to cause a movement of part of the toy relative to the rest of the toy in dependence upon a content of the data signal (col. 9 lines 7 – 22).

Claims 103 and 141 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nuytkens (U.S. Patent 6,765,950) in view of Ikeda (U.S. Patent 6,636,551) and in further view of Rose (U.S. Patent 4,480,602).

Regarding **Claims 103 and 141**, in addition to the elements stated above regarding claims 102 and 140, the combination further discloses:

wherein the responder comprises a processor operable to output the selected sound file via an electro-acoustic transducer (col. 9 lines 7 – 22).

The combination fails to disclose wherein the processor selects one of a plurality of sound files stored in a memory in dependence upon a content of the data signal.

Rose discloses a doll that includes a CPU and a ROM having digital data indicative of speech. Nuytkens discloses that the toy may reproduce a recorded sound or synthesized speech but does not explicitly disclose that this sound is stored within a memory within the toy; col. 14 lines 23 - 29. Applying the memory taught by Rose to

the toy disclosed by the combination would read upon the limitation of wherein the processor selects one of a plurality of sound files stored in a memory in dependence upon a content of the data signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teachings of the toy in Rose including the ROM with the stored speech to the toy taught by the combination. One would have been motivated to do so to create an interactive toy that stimulates a child's development; see Rose col. 1 lines 58 - 67 and col. 2 lines 1 - 15.

Claims 104 and 142 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nuytkens (U.S. Patent 6,765,950) in view of Ikeda (U.S. Patent 6,636,551) and in further view of Rose (U.S. Patent 4,480,602) and in further view of Diamond (U.S. Patent 5,314,336).

Regarding **Claims 104 and 142,** in addition to the elements stated above regarding claims 103 and 141, the combination fails to disclose wherein the memory is detachable.

Diamond discloses a child's toy that includes a detachable memory that stores a variety of sounds; abstract.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination's memory to be detachable as taught by Diamond.

One would have been motivated to do so to allow a variety of sounds that may be changed as desired; see Diamond's abstract.

Allowable Subject Matter

Claims 108 and 146 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 108 further limits the system by adding a transmitted type device to the toy with generates a data signal, spreads it and uses an acoustic transducer to covert the signal into an acoustic signal.

The toy systems that receive spread data do not typically include transmission systems. Nuytkens and Petrovic disclose toys operable to a data signal hidden in an audio signal but do not include transmitters. Gabbai discloses a toy that includes a transmitter, but it is a wireless RF device that operates well above the acoustic range. It would have been obvious to add a module that would spread a data signal and convert it into an acoustic signal without the hindsight with the aid of applicant's specification.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Flanders whose telephone number is (571) 272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7546. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

acf

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SUPERVISORY PATENT EXAMINER